

TRANSLATION (P/4712-4 -- amended claims):

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NEW CLAIMS

1. Pressure electrolyzer with an electrolytic cell block (3) that contains a number of electrolytic cells (4) combined in the form of a stack, wherein each electrolytic cell (4) contains an anode (11) and a cathode (12); wherein the electrolytic cell block (3) has a sealed housing (5); wherein the housing (5) of the electrolytic cell block (3) is formed by a number of stacked cell frames (15, 16; 25, 26) of the electrolytic cells (4); wherein the cell frames (15, 16; 25, 26) consist at least partially of a material (15a, 16a; 25a, 26a) that is elastic at least in the longitudinal direction of the electrolytic cell block (3) and seals adjacent cell frames (15, 16; 25, 26) from each other; wherein the electrolytic cell block (3) is held in place between end plates (21, 22) under compression of the elastic material (15a, 16a; 25a, 26a); wherein the cell frames (15, 16; 25, 26) have a rigid element (15b, 16b; 25b, 26b), which runs in the circumferential direction of the frame for mechanical stabilization of the cell frames (15, 16; 25, 26) and is connected with the elastic material (15a, 16a; 25a, 26a); wherein the rigid element (15b, 16b) forms a shell-like frame structure, which partially encloses the elastic material (15a, 16a) and from which the elastic material (15a, 16a) partially protrudes to form a compressible region (15c, 16c) in the longitudinal direction of the electrolytic cell block (3); and wherein adjacent cell frames (15, 16; 25, 26) each have projecting parts (15d, 16d) and recesses (15e, 16e) that fit into each other for locking the adjacent cell frames (15, 16; 25, 26) in place and/or for sealing the

adjacent cell frames (15, 16; 25, 26).

2. Pressure electrolyzer with an electrolytic cell block (3) that contains a number of electrolytic cells (4) combined in the form of a stack, wherein each electrolytic cell (4) contains an anode (11) and a cathode (12); wherein the electrolytic cell block (3) has a sealed housing (5); wherein the housing (5) of the electrolytic cell block (3) is formed by a number of stacked cell frames (15, 16; 25, 26) of the electrolytic cells (4); wherein the cell frames (15, 16; 25, 26) consist at least partially of a material (15a, 16a; 25a, 26a) that is elastic at least in the longitudinal direction of the electrolytic cell block (3) and seals adjacent cell frames (15, 16; 25, 26) from each other; wherein the electrolytic cell block (3) is held in place between end plates (21, 22) under compression of the elastic material (15a, 16a; 25a, 26a); wherein the cell frames (15, 16; 25, 26) have a rigid element (15b, 16b; 25b, 26b), which runs in the circumferential direction of the frame for mechanical stabilization of the cell frames (15, 16; 25, 26) and is connected with the elastic material (15a, 16a; 25a, 26a); wherein the rigid element (25b, 26b) forms a frame-like insert that is wholly or partially embedded in the elastic material (25a, 26a); and wherein adjacent cell frames (15, 16; 25, 26) each have projecting parts (15d, 16d) and recesses (15e, 16e) that fit into each other for locking the adjacent cell frames (15, 16; 25, 26) in place and/or for sealing the adjacent cell frames (15, 16; 25, 26).

3. Pressure electrolyzer in accordance with Claim 1 or Claim 2, characterized by the fact that each anode (11) has its own anode cell frame (15; 25), and each cathode (12) has its own cathode cell frame (16; 26).

4. Pressure electrolyzer in accordance with any of Claims 1 to 3, characterized by the fact that the elastic material (15a, 16a; 25a, 26a) consists of an elastomer or a soft elastic thermoplastic.

5. Pressure electrolyzer in accordance with any of Claims 1 to 4, characterized by the fact that the rigid element (15b, 16b; 25b, 26b) consists of a dimensionally stable material, especially a metal or a plastic.

6. Pressure electrolyzer in accordance with Claim 1, characterized by the fact that the rigid element (15b, 16b) that forms the shell-like frame structure consists of an electrically insulating material, especially plastic.

7. Pressure electrolyzer in accordance with any of Claims 1 to 6, characterized by the fact that the end plates (21, 22) form the power supply to the ends of the electrolytic cell block (3).